

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES**

In re Application of:

Appeal No. _____

Clifford L. Jordan

Serial No.: 10/522721

Examiner: Kristen Clarette Matter

Filed: 11 March 2005

Art Unit: 3771

For: COMBINED AIRCREW SYSTEMS TESTER (CAST)

Attn: Board of Patent Appeals & Interferences

Paper No. 27

SUBSTITUTE APPEAL BRIEF

Mail Stop Appeal Brief-Patents

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In response to the Notification of Non-Compliant Appeal Brief dated 23 September 2010 (unnumbered Paper), and pursuant to Appellant's Notice of Appeal filed on 26 March 2010, Appellant hereby appeals to the Board of Patent Appeals and Interferences from the rejection of claims 54-64 and 71-75 as set forth in the final office action mailed on 26 October 2009 (Paper No. 20091022) and an Advisory Action mailed on 22 February 2010 (Paper No. 20100208).

A fee of \$510.00 for filing an Appeal Brief was previously paid on 25 June 2008, and pursuant to MPEP §1204.01, that fee should be applied to the foregoing Appeal Brief.

A Petition for Extension of Time and its appropriate fee accompany this paper.

Folio: P56713US

Date: 11/23/10

I.D.: REB/kf

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I. REAL PARTY IN INTEREST

Pursuant to 37 CFR §41.37(c)(1)(as amended), the real party in interest is:

SCOT INCORPORATED,
a corporation organized under the laws of the state of Illinois,
2525 Curtiss Street
Downers Grove, IL 60515
the United States of America

as evidenced by the Assignment executed by the inventors on the 8 March 2005 and recorded
by the U.S. Patent and Trademark Office on 11 March 2005 at Reel 016414, Frame 0205.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals and no interferences known to Appellant, Appellant's legal representatives or the assignee which will directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1 through 53 and 65 through 70 have been canceled.

Thus, claims 54 through 64 and 71 through 76 are pending in the application, of which claims 54 through 64 and 71 through 75 are finally rejected and are on appeal.

Claim 76 is allowed.

IV. STATUS OF AMENDMENTS

No amendments to the claims are made subsequent to the final Office action mailed 26 October 2009 (Paper No. 20091022).

V. SUMMARY OF CLAIMED SUBJECT MATTER

A functional diagram of a gas system for a combined aircrew system tester (CAST) is shown in FIG.1. The gas system of the tester provides two air sources. One may be considered as the “first compressor” of Claim 54, and the other as the “second compressor” of Claim 54.

Alternatively, one, which may be considered as the “first unit” of Claim 59 and of Claim 72, is for testing a mask or a vest, and the other, which may be considered as the “second unit” of Claims 59 and 72, is for testing is for a G-suit (a suit designed to counteract the physiological effects of acceleration on an aviator or astronaut - called also called an anti-G suit). The air for the G-suit is provided through a G-suit port and the air for the mask/vest through the mask port. These air sources are used to perform maintenance and preflight testing of the pilot's life support equipment. The mask port air is used to test the pilot's oxygen mask and COMBAT EDGE gear. There are two modes of mask testing, ‘normal’ and ‘PBG’ (Pressure Breathing for G (acceleration force of gravity)). (Page 6, line 15-page 7, line 1)

Referring to Figs. 1 through 4, air for the mask starts by passing through an input filter 101. The ambient air is input through an inlet port. A screen mesh filter assembly screws into the inlet port to prevent particles from entering the air stream. The thread on the inlet port is designed so that it can accept a C2 (chemical) filter 246 used for chemical warfare. This feature makes it possible to use the tester in a chemical environment. All the air outputted by the tester passes through the C2 when it is installed. (Page 7, lines 2-7)

Then, the air for the mask is compressed by a low-pressure compressor system 102, which may be considered as the “first compressor” of the “common gas system” of Claims 54,

59 and 72. (Page 7, line 8)

The low-pressure compressor system 102 includes at least one blower but preferably includes at least three regenerative blowers 102a, 102b and 102c connected in series to generate the necessary pressure and flow. The output pressure is determined by the speed of the blowers 102a, 102b and 102c and how many blowers 102a, 102b and 102c are turned on. The voltage applied to each of the blowers 102a, 102b and 102c controls the speed. If the voltage decreases, the speed decreases and the output pressure is decreased. The voltage is controlled by a speed control circuit, which is part of the speed control PCB (Printed Circuit Board, PCB3). (Page 7, lines 9-16).

Then, the air for the mask passes through one of two flow sensors 106, 107 that may be considered as the first and second flow sensors of claims 54, 59 and 72, which are used to alert the user that his or her equipment is leaking and to measure the leak rate. One flow sensor is a high flow sensor 106 which measures flow from 0 to 10,000 cc/min (cubic centimeters per minute) and the other flow sensor is a low flow sensor 107 which measures flow from 0 to 300 cc/min. A mask control valve 104 and a low flow valve 105 determine which sensor is used. One of two valves 104 and 105 which are normally closed is open to permit the air to flow through one of the flow sensors 106 and 107. The output from the flow sensor 106 or 107 is fed into a digital indicator 274 (FIG.2) to indicate flow. The indicator 274 reads out in the appropriate units. Its range is set by an embedded processor on a main PCB (Printed Circuit Board, PCB1). (Page 7, line 17 - Page 8, line 2)

These sensors are excited with 10.0 VDC (voltage of direct current). At zero flow their output is 1.0 VDC (voltage of direct current). At full scale the output is 5.0 VDC (voltage of direct current). The low flow sensor 107 is not quite linear. To compensate for this, five linear

curves are fitted to the flow versus voltage curve. The slopes of these five curves are programmed into the digital indicator 274 that is used to indicate flow. (Page 8, lines 3-7)

Next, the air passes through a check valve 118 and flows out the mask port 242. The check valve 118 prevents foreign materials from entering the gas system of the tester. A pressure switch 111 and a mask pressure sensor 112 monitor the mask port pressure. They are used to control and limit the mask port pressure. The mask pressure sensor 112 converts pressure to voltage. The voltage is fed into the digital indicator 270 where it is converted to a digital signal, which is presented as number scaled in engineering units. This number is updated 13 times a second. The indicator has three logic high outputs, which output when the pressure exceeds their set pressure. In addition, the pressure switch 111 is connected to the mask pressure sensor 112. The pressure switch 111 is normally closed, and is preferably set to open at 18 in (inch) H₂O. (Page 8, lines 8-17)

A mask limit valve 114 and a backup mask limit valve 115 are also provided for controlling the mask port pressure. (Page 8, lines 18-19)

The air for the G-suit is produced by multiple compressors 102a, 102b, 102c and 103. At pressures below 55 in H₂O, the low-pressure compressor system 102 compress the air. At pressures above 55 in H₂O, a high-pressure compressor 103, which may be considered as the “second compressor” of Claims 54 and 59’s “common gas system” and Claim 72’s “gas system”, compresses the air. This is done to minimize the amount of time to inflate the G-suit. The low-pressure compressors (with regenerative blowers) 102a, 102b and 102c produce high flow at relatively low pressures while the high-pressure compressor 103 produces low flow but can compress the air to a higher pressure. This combination works particularly well when inflating the G-suit because when the G-suit inflates, initially there is a large change in

volume without much change in pressure, and then, as the G-suit fills out and becomes firm, the change in volume slows down and the rate the pressure increases. (Page 8, line 20 - page 9, line 6)

A G-suit regulator enable valve 109 and a G-suit regulator 108 are provided for regulating the G-suit pressure. The G-suit regulator enable valve 109 is normally closed. When the G-suit pressure increases up to a certain pressure, the G-suit regulator enable valve 109 is opened to vent the G-suit regulator 108. (Page 9, lines 7-10)

A G-suit control valve 110 is further provided for controlling the G-suit pressure.

With this configuration, the present invention does not require a separate high pressure source of breathing air and oxygen. (Page 9, lines 12-13)

As explained above, the present invention is self contained. Thus, a control panel of the combined aircrew systems tester of the present invention has a plurality of switches and indicators for controlling the tests for the life support systems of an aircrew member. (Page 9, lines 14-16)

FIG. 2 shows a preferred embodiment of the control panel, which may be considered as the “controller” of Claim 54 and as the “control panel” of Claims 59 and 72. (Page 9, line 17)

As shown in Fig. 2, the control panel 200 includes a ‘mode select’ switch 201, a ‘pressure select’ switch 202, a ‘test select’ switch 203, and a ‘press to test’ switch 204. (Page 9, lines 18-19)

The “mode select switch” of Claim 59’s and Claim 72’s “control panel” may be considered as mode select portion 201 includes a mode select switch 201A preferably provides for two dynamic flow leak testing (high leak (‘LK-HI’) 201D and low leak (‘LK-

LO') 201C), a G-suit leak testing ('LK-GS') 201B, and one mask testing ('mask') 201E. (Page 9, lines 20-22)

The pressure select switch 202 is preferably provided for 41M, 43M, or 45M (where M stands for 1000). Thus, the air is provided at one of four positive pressures; normal, 41M, 43M, or 45M. (Page 9, line 23 - page 10, line 2)

The test select switch 203 provides for a PBG breathing testing ('PBG'), a normal breathing testing ('normal'), and 'off'. The test select switch 203 is preferably a three-position toggle switch. The test select switch 203 drives two de-bouncers 332, 334, the PBG and the normal logic steps. (Page 10, lines 3-6)

A leaking indicator 235 is also included in the control panel 200. (Page 10, line 7)

The "third unit" of Claim 59 may be considered as the communication section, which includes audio input A 222 and B 224, a carbon headset input 226, a press to test ('PTT') jack 228, a continuity status of a microphone 230, a continuity status of the earphone 232, a microphone "on" indicator 234, an audio select switch 236 that can be switched to continuity test mode 236a, 'LIS/TLK 1' (listen/talk 1) 236b, or 'LIS/TLK 2' 236c. A port for the goggle 238 and a 'G-suit' button 240 are included along with a mask port 242. Indicators 244a and 244b relating to the PBG (pressure breathing for Gs) are also included. Reference 244b indicates that 'PBG timed out', 244a indicator concerns the 'PBG'. The control panel 200 also includes the filter 246. There are ports for the power 248 and the battery 250. A switch or indicator for tare 252 is along with a hold 254, and a reset 256 indicator or switch. A G-suit ready indicator 258 is also included along with a G-suit testing on/off switch 260 and a pressure control knob 262. The tester also includes a G-suit port pressure displays 268, a mask port pressure display 270, a time display 272, and a high and low flow display 274. The

displays can be a digital display such as light emitting diodes, or liquid crystal display or other types of indicators. (Page 10, lines 8-12)

During the operation of the tester, the aircrew does not wear COMBAT EDGE, the user selects a mask mode of operation by pressing the mode select switch 201. The user selects a desired breathing pressure by pressing the pressure select switch 202. Then the test select switch 203 is toggled to the 'normal' position, which starts air flow out of the mask port at slight positive pressure. Then the press to test button 204 is pushed to cause the air pressure to increase to the pressure selected. The air is preferably provided at one of four positive pressures; normal, 41M, 43M, or 45M. When the mask mode has been selected and the test select switch is in the 'normal' position, the mask control valve 104 opens permitting the air to flow out the mask port. When operating in the normal mask mode, the air outputted through the mask port is provided at a pressure from 1 to 10 in H₂O. (Page 11, lines 1-10)

The PBG (Pressure breathing for G) breathing is used to perform preflight tests and fit tests while the users are wearing COMBAT EDGE. The users wearing COMBAT EDGE are required to take the preflight test on their masks at PBG breathing pressure level. This test is performed at a breathing pressure of 16 in H₂O with the G-suit not inflated. When the G-suit is not inflated, it is dangerous to breathe air at pressures much above 16 in H₂O. When the mode select switch 201 is set to 'mask' and the test select switch 203 is in the 'PBG' position, the air flows from mask port at normal pressure. When the press to test button 204 is depressed, the breathing pressure increases to 16 in H₂O. The user verifies that he or she is breathing normally, verifies proper mask functions and notes that their vest starts to inflate. Then the user momentarily stops breathing to test a leak. A light of the leaking indicator 235 will go out if there are no leaks greater than 5.5 lpm (liters per minute). When the press to test

button 204 is pressed, the speed of the low-pressure compressor system 102 increases. (Page 11, lines 11-22)

After a user is initially fitted with COMBAT EDGE equipment, a fit test is performed. This test is similar to the preflight test except the fit test is performed at 32 in H₂O. The user has to be sitting down to perform this test. The fit test starts by performing the preflight test. Then the mask port pressure is increased slowly to 32 in H₂O by adjusting the pressure control release and knob 262 until the air pressure reaches 32 in H₂O. Then the preflight test is repeated. (Page 12, lines 1-6)

During preflight and fitting a red light turns on when flow exceeds 5.5 lpm. The user momentarily holds his or her breath to check for leaks. If there are no leaks, the leak light is turned off. (Page 12, lines 7-9)

The voltage from the low flow sensor 107 is compared with a preset voltage that is equivalent to the sensor output when the flow is 5.5 lpm. When the voltage exceeds the preset voltage, the light of the leaking indicator 235 is turned on. (Page 12, lines 10-12)

In order to do the preflight test safely, the G-suit has to be inflated. The low-pressure compressor system 102 and the high-pressure compressor 103 provide the air for the G-suit. When the G-suit switch 260 is turned on, the G-suit control valve 110 opens and the low-pressure compressor system 102 is turned on at its maximum operating speed so that the air rapidly fills the G-suit to its final approximate shape. When the G-suit pressure reaches 55 in H₂O, as sensed by G-suit pressure sensor 113, the high-pressure compressor 103 takes over filling the G-suit to its final pressure. The output of the G-suit pressure sensor 113 is fed into the digital indicator/controller 268. The indicator 268 turns the input voltage into a digital signal and processes it, rescaling it into engineering units and outputting it in the form of a

number presented on the indicator. The G-suit pressure is maintained at 60 in H₂O by the G-suit regulator 108. If the G-suit pressure exceeds 70 in H₂O, the high-pressure compressor 103 is turned off to limit the G-suit pressure to 70 in H₂O. After the G-suit pressure stabilizes at 60 in H₂O, the user turns off the G-suit switch 260. (Page 12, line 13 - page 13, line 2)

The G-suit is periodically checked for leakage. To do this, the G-suit is pressurized to 138.4 in H₂O (5 psi, pounds per square inch) and monitored for a change in pressure over an interval of time. (Page 13, lines 3-5)

When the mode select switch 201 is in 'LK-GS' and the G-suit switch 260 is turned on, the G-suit regulator enable valve 109 is turned on to disable the G-suit regulator 108, allowing the G-suit pressure to rise to pressures greater than 60 in H₂O, which is a normal G-suit operating pressure. The high-pressure compressor is turned off at 138.4 in H₂O. When the pressure reaches 138.4 in H₂O, the power to the G-suit control valve 110 and the high-pressure compressor 103 is turned off to limit the pressure to 138.4 in H₂O. Once the pressure stabilizes, the user turns off the G-suit switch 260 to close off the G-suit. The tare switch 252 is pushed for zeroing the time and G-suit pressure. At 120 seconds the hold button 254 is pressed for holding the indicated change in time and change in G-suit pressure. From these changes, the leak rate can be obtained. (Page 13, lines 6-15)

When the mode select switch 201 is in the 'LK-HI' position (indicator 201D), the mask control valve 104 is opened. The low flow valve 105 remains off for directing all the flow through the high flow sensor 106. (Page 13, lines 16-18)

When the mode select switch 201 is in the 'LK-LO' position (indicator 201C), the mask control valve 104 is closed. The low flow valve 105 is turned on for directing all the flow through the low flow sensor 107. (Page 13, lines 19-21)

A second method used to verify the oxygen equipment seals is to measure a drop in pressure over an interval of time. The component under the test is attached to the mask port, such as the “first unit” of Claim 59, and is pressurized to 32 in H₂O by setting the mode to ‘mask’ and the test select switch 203 to ‘PBG’. The press to test button 204 is pushed and the pressure control knob 262 is adjusted until air pressure reaches 32 in H₂O. After the pressure has stabilized, the press to test button 204 is released to cut off the air source. The tare switch 252 is pressed to start a timer and zero the pressure indicator, 268 and 270. At a prescribed time the hold switch 254 is pressed to hold the timer and the pressure indicator readings. If the change in pressure is less than a prescribed amount in the prescribed time, the leak rate is within tolerance. (Page 13, line 22 - page 14, line 8)

The present invention is designed to address safety issues with the following features.
(Page 14, lines 9-10)

When performing COMBAT EDGE testing, it is necessary to expose the user to excessive breathing pressures. Exposure to excessive breathing pressure can hurt the user. It is only safe under certain conditions and for limited periods of exposure. Under no circumstance should the breathing air pressure exceed 34 in H₂O. (Page 14, lines 11-14)

The present invention compresses the filtered ambient air to pressures close to the maximum allowable output mask pressure, while the conventional testers start with air that is compressed to pressures that are orders of magnitude greater than the maximum allowable output mask pressure. If the step down regulation system in the conventional pressures completely fails, the user is exposed to pressures that many times greater than what is safe. On the other hand, the user of the present invention would be exposed to pressures not higher than the maximum allowable mask output pressure. (Page 14, lines 15-21)

As stated before, the blowers 102a, 102b, and 102c provide the breathing air. The maximum pressure that can be developed by each of the blowers 102a, 102b, and 102c is 21 in H₂O when being driven by main power supply voltage at zero flow. If all pressure limiting systems were to fail, the maximum breathing pressure that could be developed to 63 in H₂O at zero flow, which is comparable to the maximum safe pressure of 34 in H₂O. When the user is breathing, the pressure is significantly less. (Page 14, line 22 - page 15, line 4)

Another safety feature of the present invention is a mask pressure limiting system. In the preflight test, if the pressure increases above 18 in H₂O, the power to the mask limit valve 114 is cut, venting the system through a check valve 119. This check valve 119 prevents back flow through the mask limit valve 114 when the user is inhaling. In addition, the mask port pressure is limited to 34 in H₂O under all circumstances. The backup mask limit valve 115 operating current is passed through a pressure limit switch 111 set to open at 34 in H₂O. The backup mask limit valve 115 is a normally open valve. When the pressure limit switch 111 opens, the operating current is interrupted to open the backup mask limit valve 115. (Page 15, lines 5-12)

The method of controlling the CAST is described in more detail below. Fig. 4A through 4S illustrate schematic diagrams of sections 4A through 4S, respectively of the overall block diagram of Fig. 3 of the present invention. The schematics of 4A through 4S are sectioned to show the entire schematic of the present invention. Some portions may overlap in order to accurately show the connections between the individual elements. (Page 15, lines 13-17)

The operation of the "common gas system" of Claim 59 may be considered as controlled by the main printed circuit board (PCB 1), which uses CMOS (complementary

metal oxide semiconductor) logic to control the overall operation. There are two pressure sensors, two digital indicators, five switches and one potentiometer that input and drive the logic functions located on the main PCB (Printed Circuit Board, PCB1). The logic outputs control the speed control PCB (PCB3), and the valves that control flow. (Page 15, line 18 - page 16, line 1)

All logic inputs are derived from either switch closures or TTL (transistor-transistor logic) located in the digital indicators. They pass through de-bouncers. The de-bouncers clean up these inputs and turning them into single pulse square waves with CMOS logic high levels. (Page 16, lines 2-4)

The outputs refer to either compressor motors or valves. The valve outputs and the high-pressure compressor output are located on the main PCB (PCB1). They include an opto isolator and power relays. This is done to protect the CMOS logic from inductive spikes that occur when switching a valve. The high-pressure compressor output is located on the main PCB (PCB1) and the low-pressure compressors outputs are located on the speed control PCB (PCB3). (Page 16, lines 5-10)

A mode select circuit includes the mode select switch 201, a momentary push button driving a Johnson Counter (also known as a twisted-ring counter)(see FIG. 4D). The Johnson counter provides the 'MASK' for the mask testing, 'LK-HI' for the high-leak testing, 'LK-LO' for the low leak testing, and 'LK-GS' for G-suit leak testing. It drives four buffers, which drive four LEDs (light emitting diodes) 201B, 201C, 201D, 201E, which indicate the mode that is selected. The pressure select circuit works the same way. (Page 16, lines 11-16)

The test select circuit starts with a three-position toggle switch 203, which drive two de-bouncers. The de-bouncer outputs are the 'PBG' and 'normal' logic steps. (See FIG. 4F)

(Page 16, lines 17-18)

The press to test switch 204 and the G-suit switch 260 drive two de-bouncers. Their outputs are the 'TST' and "GSUIT" logic steps. (Page 16, lines 19-20)

With respect to the G-suit pressure sensor 113 and the mask pressure sensor 112, the output from the G-suit pressure sensor 113 is fed into a digital indicator 268. The indicator 268 turns the input voltage into a digital signal and processes it, rescaling it into engineering units and outputting it in the form of a number presented on the indicator 268. It also provides a TTL logic high output at 55, 70 and 138.4 in H₂O. The indicator provides 10-volt excitation for the pressure transducer. The mask transducer (sensor) 112 works the same except it outputs TTL logic high outputs at 1, 18 and 34 in H₂O. (See FIG. 4, part O) (Page 16, line 21 - page 17, line 3)

The G-suit regulator enable valve 109 is normally closed. It is turned on to vent the G-suit regulator 108 to regulate the G-suit pressure (GSP) to 60 in H₂O, which is the normal suit operating pressure. It is turned off when performing a G-suit leak test (LK-GS). (Page 17, lines 4-6)

The G-suit control valve 110 is normally closed. In any mode select position other than 'LK-GS', the G-suit control valve 110 is turned on until the G-suit pressure reaches 70 in H₂O. In the 'LK-GS' position, the G-suit control valve 110 is turned on until the G-suit pressure reaches 138.4 in H₂O. (Page 17, lines 7-10)

With respect to the low flow valve 105, this valve 105 is turned on until the mask pressure (MP) reaches 34 in H₂O when the press to test switch 204 is pressed in the 'LK-LO' position. (Page 17, lines 11-13).

The mask limit valve 114 is normally open. When the test select switch 203 is in

'normal', the mask limit valve 114 is closed when the MP (mask pressure) is less than 18 in H₂O. In the 'LK-HI' or 'LK-LO' or the test select in the 'PBG' position, the mask limit valve 114 is on until mask port pressure reaches 34 in H₂O. (Page 17, lines 14-17)

The mask control valve 104 is normally closed. In the 'LK-HI' position, the mask control valve 104 is on until the mask pressure reaches 34 in H₂O. In the 'mask' position, the mask control valve 104 is on when the test select switch 203 is in the 'PBG' or 'normal' positions. (Page 17, lines 18-21)

The backup mask limit valve 115 is normally open. It is closed at the same time the mask limit valve 114 is closed. Its power passes through the pressure switch 111. If the mask pressure exceeds 34 in H₂O, the pressure switch 111 opens to cut off power to the backup mask limit valve 115. The backup mask limit valve 115 opens to reduce the mask port pressure. (Page 17, line 22 - page 18, line 2)

The 'High-Pressure Compressor' output turns on the high-pressure compressor 103 at 55 in H₂O and off at 70 or 138.4 in H₂O. In the 'LK-GS' position, it turns off at 138.4 in H₂O. (Page 18, lines 3-5)

The 'Low-Pressure Compressor 1' output turns on the low-pressure compressor 1 102a when the test select switch 203 is in either the PBG or 'normal' positions. If the mode select switch 201 is in the 'LK-HI' or 'LK-LO' position, the blower 102a is on. This is done to provide positive flow whenever the mask port is in use. (Page 18, lines 6-9)

The 'Low-pressure Compressor 2' output and the 'Low-Pressure Compressor 3' output turn on the low-pressure compressor 2 as '102b' in FIG. 1 and the low-pressure compressor 3 as '102c' in FIG. 1 when the test select switch 203 is in the 'normal' or 'PBG' position and the mask pressure drops below 1 in H₂O. When the test switch 203 is in the 'normal' and the

mode select switch is 'LK-LO' or 'LK-HI' position, the low-pressure compressor 2 and 3 102b and 102c are turned on when the press to test switch 204 is pushed. When the test switch 203 is in the 'PBG', the low-pressure compressor 2 and 3 102b and 102c are turned on when the press to test switch 204 is pushed and, after one minute, these two low-pressure compressors 102b and 102c are turned off. (Page 18, lines 10-18)

The 'Full ON' output is used to turn on the three low-pressure compressors 102a, 102b, and 102 c of the low-pressure compressor system 102 at their maximum operating speed when they are used to inflate the G-suit. This output is high when the G-suit switch 260 is turned on if no output is required from the mask port. The 'Mask Port' output takes precedence over G-suit inflation. (Page 18, lines 19-23)

If the 'Variable Speed Enable', '41 M Speed Enable', '43M Speed Enable' or '45M Speed Enable' is not turned on, the 'Normal Speed Enable' is on (high). (Page 18, line 4 - page 19, line 1)

When 41M is selected, the press to test button 204 is pushed, and the test select switch 203 is in the 'normal' or 'PBG' position, the '41 M Speed Enable' is on (high). (Page 19, lines 2-3)

When 43M is selected, the press to test button 204 is pushed, and the test select switch 203 is in the 'normal' or 'PBG' position, the '43M Speed Enable' is on (high). (Page 19, lines 4-5)

When 45M is selected, the press to test button 204 is pushed, and the test select switch 203 is in the 'normal' or 'PBG' position, the '45M Speed Enable' is on (high). (Page 19, lines 6-7)

When 'LK-HI' or 'LK-LO' or 'PBG' with the press to test button 204 is pushed, the

'Variable Speed Enable' is on provided the G-suit pressure is greater than 55 in H₂O. The output from the G-suit pressure transducer (sensor) 113 is compared with a preset level to determine whether condition is being met. (Page 19, lines 8-11)

The high-pressure compressor is turned on by the 'HP CMPR ON' signal. The 'HP CMPR ON' goes high when the G-suit switch is turned on and the following conditions are met; the G-suit pressure is greater than 55 in H₂O but less than 138.4 in H₂O, and the G-suit pressure is less than 70 in H₂O or 'LK-GS' mode selected. (Page 19, lines 12-15)

The speed control PCB (PCB3) provides power to the three low-pressure compressors 102a, 102b and 102c. The power provided to the low-pressure compressors voltage is variable. This is done to vary the compressors output pressure. The low-pressure compressor 1 102a is turned off and on independently of the low-pressure compressors 2 102b and 3 102c. The speed control section outputs one of four fixed voltages or a variable voltage to the compressors that are turned on. Three adjustable voltage regulators tied in parallel supply the compressor voltage. Five external variable resistors set the regulators output voltage. (See FIG. 4N) (Page 19, lines 16-23)

The speed control PCB (PCB3) has eight logic inputs. The logic inputs set the variable speed control and determine which compressors are turned on. The logic inputs are 'Full On', 'the Low-Pressure Compressor 1', 'the Low-Pressure Compressor 2 and 3', 'Normal Speed Enable', '41M Speed Enable', '43M Speed Enable', '45M Speed Enable', and 'Variable Speed Enable'. (Page 19, line 19 - page 20, line 4)

The low-pressure compressor motor outputs include four power relays. Two power relays drive the low-pressure compressor 1 motor and the other two power relays drive the low-pressure compressor 2 and 3 motors. Opto isolators drive the power relays. This is done

to protect the CMOS logic from inductive spikes that occurs when switching the motors. When the 'Full On' input goes high, one set of relays turns on, outputting 15 VDC (voltage of direct current) to all three low-pressure compressor motors 102a, 102b and 102c. When either or both of the second set relays turn on, the variable voltage from the voltage regulators is outputted to the appropriate motors. (See FIG. 4M and 4N) (Page 20, lines 5-12)

The pressure control 262 located on the control panel 200 is the variable resistor that is inputted to the speed control board. It is bypassed when the variable pressure switch 290 is in the 'CONST' position 290a causing the mask port pressure to stay at 16 in H2O. Otherwise the output pressure can be varied between 16 and 34 in H2O when the test select switch 203 is set to 'PBG'. (Page 20, lines 13-17)

As part of preflight, the user verifies his or her communication equipment. The user attaches to the tester and talks into the microphone. The sound picked up by the microphone should be clearly heard with the earphones. Audio system is made up of a preamp and a power amp. Several different kinds of microphones can be inputted into the tester. There are four different microphone inputs. The primary input is 'audio A' 222. This input is configured to accept a 5-ohm dynamic microphone when the audio select switch 236 is in the LIS/TLK 1 (listen/talk) 236b. In the LIS/TLK 2 position 236c, it is configured to interface with an Electret microphone that requires 10-VDC (voltage of direct current) bias with 8 mA (milliamperes) current limit. In this position an audio input transformer and bias circuit is added to the input circuit. The output of the audio input transformer is fed into the preamp. There are two carbon microphone inputs parallel together. The two inputs are the carbon headset jack 226 and the PTT (Press to talk) talk jack 228. These inputs 226 and 228 have 24-VDC bias current limited to 10 mA. The input from the carbon microphone is fed directly to

the power amplifier bypassing the preamp. The primary audio output is through the audio A jack 222. In the LIS/TLK 1 236b, it is setup to output into a 10-ohm dynamic microphone. In the LIS/TLK 2 position 236c, it is designed to output to 600 ohm input impedance earphones. The 'audio B' jack 224 is always configured to accept 5 ohm dynamic microphone and output to a 10 ohm dynamic load. The audio A jack 222 also provides +28 VDC (voltage of direct current) up to 200 mA power. It can be used to drive an ANR (Active Noised Reduction) unit. (Page 20, line 18 - page 21, line 13)

A built in continuity tester can be provided to trouble shoot the communication gear. When the audio select switch 236 is in the 'cont' (continuity) position 236a, the communication circuits turn into a continuity tester. The carbon microphone, dynamic microphone and dynamic headset output DC resistance is monitored. If the dynamic microphone input resistance is between 4 to 7 ohms, the microphone light 230 will turn green. If it is less than 2 ohms, the microphone light 230 will turn red. If the output resistance is between 8 to 12 ohms, the earphone light 232 will turn green. If the output resistance is less than 2 ohms, the earphone light 232 will turn red. If the carbon microphone input resistance is between 80 to 500 ohms, the microphone light 230 will turn green. If it is less than 20 ohms, the microphone light will turn red. The input/output resistance of these three circuits is determined by holding the current through input/output constant. Now the resistance is directly proportional to the voltage. This voltage is amplified and fed into a window comparator and a limit comparator. The window comparators control the microphone/earphone green lights. If the comparators input voltage falls within the upper and lower set points, the green light will turn on. If the input voltage is less than limit comparator set voltage, the red light will turn on. (Page 21, line 14 - page 22, line 5)

To perform a goggle test, the EEU-2P flash goggles or equivalent are attached to the tester. After 10 seconds, the PTT button 228 is pressed. The goggles will turn opaque if they are working. 28 to 32 VDC is supplied to the EEU-2P goggles through the goggle jack 238. This voltage has to be 27 VDC min (minimum voltage). when outputting 20ma into 1400 ohm. The shorted output current must be 70 mA minimum and not more than 100 mA maximum. This is accomplished with voltage regulator and current limiting circuits. (Page 22, lines 6-11)

Fig. 5 illustrates a general block diagram of a portion of the present invention. The “common gas system” of Claim 59 may be considered to include a gas system unit 802 which includes elements such as valve and compressor units and a speed control unit (See PCB3). The gas system unit 802 is controlled by the main PCB (PCB1) which uses the logic unit 804 to control the overall operation (See FIG. 4). The logic unit 804 outputs control the speed control unit (See PCB3), and the valves that control the flow. The “third unit” of Claim 59 may be considered as communication unit 806, which is also included in the present invention and includes the audio unit 808 (See PCB2) which is connected to PCB1. (Page 22, lines 12-18)

The present invention integrates a plurality of testers into one unit and yet requires less power than earlier systems. The unit runs on standard 115 or 230 VAC (voltage of alternating current), 47-440 Hz (hertz), 4 Amperes. Input requirements are 85-132/170-264 VAC 47-440 HZ (hertz) 400W (watts). The mask port pressure/flow output schedule is shown by the following table: (Page 22, line 19 - page 23, line 11)

Table 1

Setting	@ 0 LPM in H ₂ O	@ 5.0 LPM in H ₂ O
NORMAL	3.25	1.75±.5
41M	5.8	4.00±.5
43M	8.25	6.00±.5
45M	10.5	8.00±.5
PBG	16-32	NA
LK HI	16-32	NA
LK LO	16-32	NA

The tester 100 can be run from an internal rechargeable battery pack as an alternative to alternating current input from an outside source connected to for example the battery port 250. The battery pack can be nickel metal hydride batteries accessible through a weatherproof side panel. Other types of batteries such as lithium-ion and lithium-polymer can also be used. The power cord for outside power source can be attached to the back panel when the console is mounted. A built in charger can charge the tester in one hour or less or 20 minutes on the average. The tester can run up to 8 hours or more from its internal rechargeable battery pack. The duration can be increased depending on the type and size of the battery. (Page 23, lines 12-20)

The G-Suit port output pressure is shown by the following table: (Page 23, line 21 - page 24, line 3)

Table 2

Setting	Output Press. in H ₂ O
G-suit on	58±1
G-suit leak test	0-150

An exemplar specification for the construction of embodiments of the present invention (CAST) contemplates: (Page 24, line 4)

The leak indication is shown by a leak above 5.5±.5 lpm (liters per minute). The flow indication is 0-10,000±25 sscm and 0-300±1 sscm. The pressure drop leak range is 0-5 lpm. The temperature limits for the operating range is 0°C to 50°C while for storage is -40°C to 75°C. The flash goggle power is 28±2 VDC (voltage of direct current), 70-100 ma (milliamperes), current limited to 100 ma (milliamperes) maximum. The active noise reduction (ANR) power is +28 ±4 VDC (voltage of direct current) 200 ma (milliamperes) minimum. The microphone input current is 8 mA (milliamperes) maximum at 10 VDC (voltage of direct current). (Page 24, lines 5-12)

Claim 54

Independent claim 54 defines a first compressor compressing air coupled to each of the first system and the second system, with the first compressor using at least one blower, the speed of said blower depending on a voltage applied to said blower; and a second compressor compressing the air coupled to the second system. The second compressor produces a lower flow at a higher pressure than the first compressor. (line 8, page 7, and line 20, page 8 through line 6, page 9, and lines 11 through 14, page 14, and line 11, page 17 through line 15, page 19)

A first flow sensor detects a flow of the air compressed by the first compressor and leakage of the aircrew systems, a second flow sensor detecting the flow of the air compressed by said the compressor and the leakage of the aircrew systems, a first flow valve is mounted to control the flow of the air compressed by the first compressor to the first flow sensor, and a second flow valve mounted for controlling the flow of the air compressed by said first compressor to said second flow sensor. (line 2, page 7 through line 19, page 8, and Tables 1 and 2)

A regulator regulates pressure of the second system. (line 7, page 9 to line 13, page 9) A regulator enable valve is coupled to the regulator and controls pressure of air flowing through the regulator. (line 7, page 9 to line 13, page 9)

A first pressure sensor detects a pressure of the first system. (line 17, page 7 to line 2, page 8) A second pressure sensor detects the pressure of the second system. (line 7, page 9 to line 13, page 9)

A first pressure valve controls the pressure of the first system (line 11, page 17 to line 2, page 18) and a second pressure valve controls the pressure of the second system. (line 4, page 17 through 10, page 17) A controller regulates operation of the gas system. (line 14, page 9 to line 22, page 9)

Claim 59

The apparatus of claim 59 is defined with a first unit configured to test a mask, a second unit configured to test a G-suit, a third unit configured to test a communication systems, and a common gas system integrated into the first and second units. (line 15, page 6 to line 1, page 7). The common gas system characterized by a first compressor and a second

compressor producing a lower flow and a higher pressure than the first compressor, (Tables 1 and 2, page 21). The first compressor compresses air when a pressure of an item to be tested is below a preset pressure value, and the second compressor compressing the air when the pressure of the item to be tested is equal to or over the preset pressure value. (line 6, page 18 to line 18, page 18, and line 10, page 18 to line 1, page 19)

A control panel is coupled to each of the first unit, the second unit, the third unit, and the common gas system, the control panel including a mode select switch for controlling flow of air compressed by the first compressor or the second compressor. (line 14, page 9 to line 22, page 9)

Claim 72

Independent claim 72 contemplates first and second units for testing a mask and for testing a G-suit and a gas system coupled to the first unit and the second unit, (line 15, page 6 to line 1, page 7). The gas system is defined as a first compressor for compressing air, the first compressor coupled to the first unit and a second compressor for compressing air, the second compressor coupled to the second unit. (line 8, page 7, and line 20, page 8 through line 6, page 9) A first flow sensor detects flow of air compressed by the first compressor. (line 17, page 7 to line 2, page 8)

A first flow valve is coupled to the first flow sensor, the first flow valve controls a flow of air compressed by the first compressor into the first flow sensor, and a first pressure sensor detects pressure of the first unit. (line 2, page 7 to line 19, page 8)

A second pressure sensor detects pressure of the second unit, a regulator regulating pressure of air flowing into the second unit, and a regulator enable valve coupled to the

regulator controls pressure of air flowing through the regulator. (line 7, page 9 to line 13, page 9)

A control panel coupled to each of the first unit, the second unit, and the gas system, the control panel including a mode select switch for controlling flow of air compressed by the first compressor or the second compressor, the mode select switch turning on or off the first flow valve depending on a mode selected by the mode select switch. (line 14, page 9 to line 22, page 9)

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- A. 35 U.S.C. §121 protects the right of an application to respond to a restriction requirement by elected to prosecute a later divisional application that presents claims which ignores the original restriction requirement and claims more than one separate and distinct invention.
- B. Is the Examining staff granted authority under 35 U.S.C. §121 to reject a claim filed in a divisional application under the doctrine of non-obviousness double patenting, when the applied art is “[a] patent issuing upon an application with respect to which a requirement for restriction under the section has been made,” and the claim is pending in a divisional “application filed as a result of the requirement ... before the issuance of the patent on the other application?”
- C. Does 35 U.S.C. §121 authorize the citation of Appellant’s parent application to support any type of rejection of any claim in this divisional application despite the prohibition (*e.g., shall not* be used as a reference ... against a divisional application) against citation use of Appellant’s parent application as a reference against this divisional application?
- D. Is the prohibition of the third sentence of 35 U.S.C. §121 limited by the style of the claims in the cited patent, or in the application, and in the divisional application?
- E. Does the administrative record before the Board contain evidence able to make a *prima facie* demonstration of obviousness of claim 59 over claims 21 and 39 of Appellant’s parent application?
- F. What authority is the Examining staff granted under 35 U.S.C. §121 to reject a claim filed in a divisional application under the doctrine of non-obviousness double patenting, when the rejection is premised upon the modification by a secondary reference by Appellant’s “patent issuing upon an application with respect to which a requirement for restriction under the section has been made,” and the claim is pending in a divisional “application filed as a result of the requirement ... before the issuance of the patent on the other application?”

- G. Does Paper No. 20070914 make a *prima facie* demonstration of obviousness of claims 54 through 58, and 71 through 75 over claims 1, 3, 4, 7, 9, 17, 21, 26, and 27 of Appellant's parent application U.S. Patent No. 6,820,616 B1 modified according to Sherrod US 5,979,444 A?
- H. Are rejections based upon assertions of statutorily different categories of invention anything more than a myth, that lacks upon statutory basis authorizing rejection of claims?

VII. ARGUMENT

The Rejection of Claims 59-64 On Obviousness-Type Double Patenting

Claims 59 through 64 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 19 through 21, 23, 24, 28, and 39 of U.S. Patent No. 6,820,616 B1. In support of this rejection, Paper No. 20091022 stated that,

“Although the conflicting claims are not identical, they are not patentably distinct from each other because for example, instant claim 59 has everything as recited in the patented claim 21 including a controller. The only difference is the recitation of a control panel with a “mode selection switch.” However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a control panel to US’616’s controller so that the user can adjust the settings via the switches. Note that the controller controls the operation of the gas system, which comprises the first, second, and third units and the common gas system (see patented claim 21), it is considered that the controller is coupled to all the units and the common gas system for providing the controlling function. The limitation of control panel is also found in the patented claim 39. In addition, having a switch in a control panel is a well-known feature for controlling a system. The limitation of a switch is also found in the patented claim 39. Thus, any infringement over the patent

would also infringe on the instant claims.

The limitations of claim 60 can be found in patented claim 20 (again it would have been obvious to include a control panel with a mode selection switch for the device with four testing units instead of three). The limitations of claim 61 can be found in patented claim 21. The limitations of claim 62 can be found in patented claim 23. The limitations of claim 63 can be found in patented claim 24. The limitations of claim 64 can be found in patented claim 28.”

This rejection is factually erroneous, and is of questionable legality under 35 U.S.C. § 121, as may be understood by the following explanation.

First, and more specifically, the statement that “*The only difference is*” is an explicit admission by the Examining staff that patented claim 21 is structurally different from pending claim 59, and that the issue which the Examining staff seeks to present to the Board is whether that *only difference* is inadequate to avoid an obvious-type double patenting rejection?

Appellant respectfully submits that a question of obvious-type double patenting requires consideration of the “subject matter as a whole” rather than a determination of whether “*the only difference is*” itself “a well-known feature for controlling a system?”

Appellant further submits that not only “*the only difference is*” itself, but also the relations between that “*only difference*” and the other constituent components of the claim must be considered in the light of the factual evidence introduced into the administrative record, before any conclusion of obviousness may be made.

Second, one structural aspect of that admission, that “*the only difference* is the recitation of a control panel with a “mode selection switch,” is unsupported by any factual evidence present in the administrative record which would support a conclusion-of-law that this *only difference*, “a control panel with a mode selection switch,” is “such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art” as is suggested under 35 U.S.C. §103(a) to support a finding of obviousness-type double patenting.

Third, this finding-of-fact is incomplete under 37 CFR §1.104 and fails to make a *prima facie* showing of obviousness-type double patenting because “the subject matter as a whole” differs from patented claim 21 by more than the “the recitation of a control panel with a “mode selection switch.” In particular, pending claim 59 differs by such aspects as,

“a control panel coupled to each of the first unit, the second unit,
the third unit, and the common gas system, the control panel
including a mode select switch for controlling flow of air
compressed by the first compressor or the second compressor.”

Where in the administrative record is evidence showing the obviousness of the relationship between the first and second compressors, the flow of air and the control panel defined by claim 59?

In point-of-fact, no evidence has been introduced into the administrative record that would support an inference of evidence that these differences “such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.” As was observed by the U.S. Court of Appeals for the Federal

Circuit, “the Examiner’s bald assertion that”¹ 64

“it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a control panel to US’616’s controller so that the user can adjust the settings via the switches”

lacks, upon the administrative record now before the Board,

“any support for or explanation of this conclusion.”²

Instead,

“the Examiner relies on hindsight in reaching his obviousness determination.”³

Fourth, in support of this objection, and the accompanying rejection of claim 59, the Examiner has previously asserted that,

In support of this objection, and the accompanying rejection of claim 59, the Examiner has previously asserted that,

“Applicant’s claim for the benefit of a prior-filed application under 35 U.S.C. 119(c) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 120 and 365(c) as follows:

If applicant desires to claim the benefit of a prior-filed

¹ *In re David H. Fine*, 837 F.2d 1071 (Fed. Cir. 1988)

² *In re David H. Fine*, *supra*

³ *In re David H. Fine*, *supra*

application under 35 U.S.C. 120 and 365, a specific reference to the prior-filed application in compliance with 37 CFR 1.78(a) must be included in the first sentence(s) of the specification following the title or in an application data sheet.

For benefit claims under 35 U.S.C. 120, 121 or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of the applications. If the instant application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application.”

Appellant respectfully notes that neither 37 CFR §1.78(a) nor 37 CFR §1.78(d) impose these requirements; moreover, there is absolutely not one word written by the U.S. Congress in 35 U.S.C. §121 that purports to limit Appellant’s ability to seek examination of either subject matter which was not encompassed by the Examiner’s grouping in Paper No. 4 issued on the 21st of June 2003, or of the non-elected claims as a consequence of the Examining staff’s imposition of a requirement under 35 U.S.C. §121. This rejection of claim 59, is improper. The Board is respectfully urged to refuse to sustain this rejection.

- A. 35 U.S.C. §121 protects the right of an application to respond to a restriction requirement by elected to prosecute a later divisional application that presents**

claims which ignores the original restriction requirement and claims more than one separate and distinct invention.

The statement made during the imposition of a requirement for restrict under 35 U.S.C. § 121 that the “elected subject matter” encompasses apparatus while the non-elected subject matter encompasses process, does not prohibit an applicant from presenting in a timely-filed subsequent application either hybrid claims or claims combining one feature from the claims encompassing the elected subject matter and a different feature drawn from claims encompassing the non-elected subject matter.

Moreover, the distinction between “apparatus” and “process” is artificial and contrived. Notice should be taken that the Federal Circuit in *TiVo, Inc. v. Echostar Communications Corporation, et al.*, which ruled that “**hardware claims**” may be written in both a “**process**” style (e.g. claim 1 in *TiVo*) and in an “**apparatus**” style (e.g. claim 32 in *TiVo*). Consequently, the claims presented in a divisional application that are directed to the **non-elected subject matter** of Group II defined in Paper No. 4 may be written either in an “apparatus” style or in a “process” style.

Consideration should also be given to the fact that no demarcation between the elected and non-elected groups given in a requirement for restriction under 37 CFR § 1.142 contemplates examination of subject matter not encompassed by the elected group.⁴ In an

⁴ In other words, nothing in the imposition of a requirement imposed under 35 U.S.C. § 121 makes provision for the rapid, or early examination of any of the subject matter not held by the Office to encompass the ***elected subject matter***. Whether a combination of one constituent component of a claim encompassing the elected subject matter and a feature taken from a claim that does not encompass the elected subject matter will define useful, novel and unobvious subject matter is immaterial to the examination after the requirement for restriction is made final. The important point here is that nothing the

analogous context, this point is further emphasized by the admonition give by the Federal Circuit that “[a]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments.”⁵ In short, 35 U.S.C. §121 protects the ability of an applicant to seek patent protection for aspects and features disclosed in a parent application which are not encompassed by a requirement for restriction that limits the examination of the parent application to only the subject matter encompassed by those claims and that class and subclass used to define the demarcation of only the elected Group I.

The recent recognition by the Federal Circuit held that a “later divisional applications filed in response to a restriction requirement *need not be limited to a single one of the examiner’s demarcated inventions to preserve the right to rely on the safe harbor of §121,*”⁶ and that 35 U.S.C. §121 secures to Appellant those broad rights that allows “patentees to respond to a restriction requirement by electing to prosecute a later divisional application ignoring the original restriction requirement and claiming more than one separate and distinct

requirement imposed either identifies or defines this combination of features drawing from the “elected subject matter” and the “non-elected subject matter.” 35 U.S.C. §121, as explained by the Federal Circuit in *Boehringer Ingelheim International GmbH, et al. v. Barr Laboratories, Inc., et al.*, 592 F.3d @ 1354 (Fed. Cir. 25 January 2010), the right of the applicant to obtain examination of this combination of features drawn from the “elected subject matter” and the “non-elected subject matter” in a subsequent timely-filed application is protected from a “double patenting” rejection by the explicit text of 35 U.S.C. §121.

⁵ *Epistar Corporation v. International Trade Commission, et al.*, 566 F.3d 1321, 91 USPQ 2d 1180 (2009).

⁶ *Boehringer Ingelheim International GmbH, et al. v. Barr Laboratories, Inc., et al.*, 592 F.3d @ 1354 (Fed. Cir. 25 January 2010).

invention” without regard for the demarcation established by the initial requirement for restriction has been erroneously ignored by these final rejections.

The pending claims such as claim 54 and its dependent claims 55 through 58 and 71, independent claim 59 and its dependent claims 60 through 64, and independent claim 72 and its dependent claims 73 through 75, that define the cooperative relation between the controller (in claim 54) or the “control panel” (in claims 59 and 72) and Appellant’s “first unit”, “second unit”, “third unit”, “common gas system”, “mode select switch” and the “first compressor” and the “second compressor.” The particular operational relationships between the structural features of claim 59 define the “method of operating a gas system and method of testing” of non-elected Group II (*e.g.*, “compressing the air when the pressure ... is below ...” and “compressing the air when the pressure ... is equal to ...”) of Paper No. 4. Consequently, the prohibition of 35 U.S.C. §121 prohibits the citation of the parent to which the requirement for restriction was applied, to support a double patenting rejection of claims 59 in the instant divisional application. The Board is accordingly urged to refuse to sustain this rejection.

B. The Examining staff is granted no authority under 35 U.S.C. §121 to reject a claim filed in a divisional application under the doctrine of non-obviousness double patenting, when the applied art is “[a] patent issuing upon an application with respect to which a requirement for restriction under the section has been made,” and the claim is pending in a divisional “application filed as a result of the requirement ... before the issuance of the patent on the other application.”

⁷ Dissent of Gajarsa and Dyk, JJ, *Boehringer Ingelheim International GmbH, et al. v. Barr Laboratories, Inc., et al., supra.*

Claim 59 is rejected under the doctrine of non-statutory, obviousness-type double patenting over claims 19 through 21, 23, 24, 28 and 39 of Appellant's U.S. Patent No. 6,820,616 B1. In support of this rejection, the Examining staff previously argued that,

"The limitation of a control panel with respect to Applicant's arguments against the double patenting rejection of claim 1, it is respectfully submitted that ... that applicant has been clearly shown the similarities in the corresponding claims."

Now, Paper No. 20070914 argues in an un-numbered paragraph, that,

"the conflicting claims are not identical, they are not patentably distinct from each other because ... claim 59 **has everything as recited in the patented claim 21** including a controller. *The only difference is ... a control panel.* ... The limitation of a control panel is also found in the patented claim 39"

Undisputed is that Appellant's U.S. Patent No. 6,820,616 B1 "[a] patent issuing upon an application with respect to which a requirement for restriction under the section has been made," and that rejected claim 59 is pending in a divisional "application filed as a result of the requirement.

What the Examiner has improperly ignored however, is that Appellant's *Application Data Sheet 37 CFR 1.76* expressly claims, under the *Domestic Benefit/National State Information*, is in the express language of Appellant's *Application Data Sheet 37 CFR 1.76*, that accompanied the filing of Appellant's above-captioned application, is a:

Division application of [Appellant's] Prior Application Number
10208188 filing Date 2002-07-31 Patent Number 6820616 Issue

Date 2004-11-23.”

In the precise language and format of the Appellant’s *Application Data Sheet* 37 CFR 1.76,⁸

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.					
Prior Application Status	Expired		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
10522721	a 371 of international	PCT/US03/19580	2003-07-17		
Prior Application Status	Patented		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
10522721	Division of	10208188	2002-07-31	6820616	2004-11-23
Prior Application Status	Expired		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
10522721	non provisional of	60/308846	2001-08-01		
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					

Under the statute however,

“A patent issuing upon an application with respect to which a requirement for restriction under the section has been made, or on an application filed as a result of the requirement, shall not be used as a reference either in the Patent and Trademark Office ... against a divisional application or against the original application or on any patent issued on either of them if the

⁸ The *Domestic Benefit/National Stage Information* is a transient screen shot that appeared during the on-line filing of the above-captioned Application.

divisional application is filed before the issuance of the patent on
the other application.”⁹

In other words, the above-captioned application (*a*) is a divisional application of U.S. Patent No. 6,820,616, and (*b*) was timely filed on the 11th of March 2005 during (*c*) the co-pendency of Appellant’s PCT International application entitled *COMBINED AIRCREW SYSTEMS TESTER (CAST)*, which had been filed under Title 35 U.S. Code §365(c) on the 17th of July 2003 and duly assigned Serial No. PCT/US03/19560, as was claimed in Appellant’s original specification,

This application also makes reference to, incorporates the same herein, and claims all benefits accruing under 35 U.S.C. §119 from a provisional application entitled *Combined Aircrew Systems Tester (CAST)* filed in the United States Patent & Trademark Office on 1 August 2001, and there duly assigned Serial No. 60/308,846 and my U.S. patent application entitled *COMBINED AIRCREW SYSTEMS TESTER (CAST)* filed in the United States Patent & Trademark Office on 31 July 2002, and there duly assigned Serial No. 10/208,188 by that Office, which is now issued as U.S. Patent No. 6,820,616 on 23 November 2004. This application further makes reference to, incorporates the same herein, and claims all benefits accruing under Title 35 U.S. Code §365(c) of my PCT International application entitled *COMBINED AIRCREW SYSTEMS TESTER (CAST)*, filed on 17 July 2003 and duly assigned Serial No. PCT/US03/19560.

Or, in the language of the now amended specification,

This application is filed pursuant to 35 U.S.C. §121 as a Divisional of Applicant’s Patent Application Serial No. 10/208,188 filed in the U.S. Patent & Trademark Office

⁹ 35 U.S.C. §121.

on the 31st of July 2002, which is now issued as U.S. Patent No. 6,820,616 on 23 November 2004 and assigned to the assignee of the present invention. All benefits accruing under 35 U.S.C. §120 from the parent application are also hereby claimed.

This application also makes reference to, incorporates the same herein, and claims all benefits accruing under 35 U.S.C. §119 from a provisional application entitled *Combined Aircrew Systems Tester (CAST)* filed in the United States Patent & Trademark Office on 1 August 2001, and there duly assigned Serial No. 60/308,846 ~~and my U.S. patent application entitled *COMBINED AIRCREW SYSTEMS TESTER (CAST)* filed in the United States Patent & Trademark Office on 31 July 2002, and there duly assigned Serial No. 10/208,188 by that Office, which is now issued as U.S. Patent No. 6,820,616 on 23 November 2004.~~ This application [[also]] further makes reference to, incorporates the same herein, and claims all benefits accruing under Title 35 U.S. Code §365(c) of my PCT International application entitled *COMBINED AIRCREW SYSTEMS TESTER (CAST)*, filed on 17 July 2003 and duly assigned Serial No. PCT/US03/19560.

prior to the issue date of Appellant's Serial No. PCT/US03/19560. The instant, above-captioned U.S. application Serial No. 10/522.721 is a continuation of Appellant's U.S. Patent No. 6,588,243, and a divisional application of Appellant's U.S. Patent No. 6,820,616. Even the fact that such a requirement for a restriction may have been belatedly withdrawn in a subsequent Office action due to the Examiner's delayed recognition that all of the independent claims were allowable over the prior art is immaterial under the language of 35 U.S.C. §121, because Appellant had already been subjected by the Examiner to the inconvenience, delay in obtaining an issue date and the unnecessary expense concomitant to a requirement imposed under 35 U.S.C. §121. Nothing in 35 U.S.C. §121 negates the

prohibition that the parent application “shall not be used as a reference either in the Patent and Trademark Office ... against a divisional application ... if the divisional application is filed before the issuance of the patent on the other application”¹⁰ even after the Examiner purports during the course of the conclusion of the examination, to have withdrawn a requirement earlier imposed under 35 U.S.C. §121; Appellant notes that when the Examiner examines the application on the basis of the Appellant’s election prior to purporting to withdraw a requirement for election of species, but does not expressly accord the Appellant an opportunity to add claims directed to all of the non-elected species, the “withdrawal” is in name only, and is illusory because Appellant has been denied the opportunity to present claims specifically directed to the non-elected species to the exclusion of the elected species.

This rejection is therefore, contrary to law, because the sole requirement imposed by the foregoing excerpt of 35 U.S.C. §121 has been met, namely the filing on the 11th of March 2005 of Appellant’s above-captioned application during the co-pendency of Appellant’s PCT International application entitled *COMBINED AIRCREW SYSTEMS TESTER (CAST)*, filed under Title 35 U.S. Code §365(c) on the 17th of July 2003 and duly assigned Serial No. PCT/US03/19560, as was claimed in Appellant’s original specification

Absent Congressional action to modify 35 U.S.C. §121, neither the Director nor any member of the Examining staff has the authority to belatedly overrule the action taken by the Office in imposing a requirement for restriction under 37 CFR §1.142. This rejection is therefore, not sustainable on the evidence of record.

Appellant notes that this rejection gives no consideration to either the *O.G.* page or Appellant’s immediate parent, U.S. Patent No. 7.270.125 B1 issued on the 18th of September

¹⁰ 35 U.S.C. §121.

2007, as a “**Division** of application No. 10/208,188, filed on Jul 31, 202, now Pat. No. 6,820,616,” or to the accompanying *Data Sheet* of Appellant’s immediate parent. This failure is evidence of the lack of completeness in Paper No. 20091022 under 37 CFR §1.104(a) and (b). Correction of this omission, and reconsideration are respectfully requested.

C. 35 U.S.C. §121 mandates a prohibition (e.g., *shall not be used as a reference ... against a divisional application*) of citation of Appellant’s parent application to support any type of rejection of any claim in this divisional application.

Claim 59 is rejected under the doctrine of non-statutory, obviousness-type double patenting over claims 19 through 21, 23, 24, 28 and 39 of Appellant’s U.S. Patent No. 6.820.616 B1. In support of this rejection, the Examining staff previously argued that,

“The limitation of a control panel with respect to Appellant’s arguments against the double patenting rejection of claim 1, it is respectfully submitted that ... that Appellant has been clearly shown the similarities in the corresponding claims.”

Now, Paper Nos. 20070914 and 20091022 argue that,

“the conflicting claims are not identical, they are not patentably distinct from each other because ... claim 59 **has everything as recited in the patented claim 21** including a controller. *The only difference is ... a control panel.* ... The limitation of a control panel is also found in the patented claim 39”

What the Examiner has improperly ignored however, is that Appellant’s *Application Data Sheet* 37 CFR 1.76 expressly claims, under the *Domestic Benefit/National State Information*,

using the express language of Appellant's *Application Data Sheet* 37 CFR 1.76 which accompanied the filing of Appellant's above-captioned application, and which has today been re-filed, is sufficient to invoke the absolute prohibition (*e.g.*, **shall not be used as a reference ... against a divisional application**) of 35 U.S.C. §121 against citation of Appellant's parent application to support any type of rejection of any claim in this divisional application.

Moreover, 37 CFR 1.76 is nowhere declared to constitute the sole and exclusive mechanism for an Appellant to make a claim as a divisional application. Here, the requirement imposed under 35 U.S.C. §121 and 37 CFR §1.142 remains and was never withdrawn while examination of Appellant's parent applications was open. Consequently, this rejection is therefore illegal under 35 U.S.C. §121. Withdrawal of this rejection however, is respectfully urged.

D. The prohibition of the third sentence of 35 U.S.C. §121 is not limited by the style of the claims in the cited patent, or application, and in the divisional application.

Claim 59 is rejected under the doctrine of non-statutory, obviousness-type double patenting. The third sentence of 35 U.S.C. §121 applies that prohibition against the patent, or application itself, and that prohibition is not limited by either the style, format or even the content of the claims in the divisional application. Moreover, what the Examiner appears to have ignored here is that a requirement for restriction is imposed on the basis of **subject matter**, not upon the claims, because the claims define neither a Group in a requirement for restriction or a Genius or Species in a requirement for an election of species.

As was explained by the Federal Circuit in *TiVo, Inc. v. Echostar Communications*

Corporation, et al., “**hardware claims**” may be written in both a “**process**” style (*e.g.* claim 1 in *TiVo*) and in an “**apparatus**” style (*e.g.* claim 32 in *TiVo*). Consequently, the claims presented in a divisional application that are directed to the **non-elected subject matter** of Group II defined in Paper No. 4 may be written either in an “apparatus” style or in a “process” style.

Claims 59 through 64 define the cooperative relation between the “control panel” and Appellant’s “first unit”, “second unit”, “third unit”, “common gas system”, “mode select switch” and the “first compressor” and the “second compressor.” The particular operational relationships between the structural features of claim 59 define the “method of operating a gas system and method of testing” of non-elected Group II (*e.g.*, “compressing the air when the pressure ... is below ...” and “compressing the air when the pressure ... is equal to ...”) of Paper No. 4. Consequently, the prohibition of 35 U.S.C. §121 prohibits the citation of the parent to which the requirement for restriction was applied, to support a double patenting rejection of claims 59 through 64 in the instant divisional application. The Examiner is accordingly urged to refuse to maintain this rejection.

E. Paper No. 20070914 fails to make a *prima facie* demonstration of obviousness of claim 59 over claims 21 and 39 of Appellant’s parent application.

Appellant again notes that claim 59 is rejected under the doctrine of non-statutory, obviousness-type double patenting over claims 21 and 39 of Appellant’s U.S. Patent No. 6.820.616 B1. In support of this rejection, the Examining staff previously argued that,

“The limitation of a control panel with respect to Appellant’s arguments against the double patenting rejection of claim 1, it is

respectfully submitted that ... that Appellant has been clearly shown the similarities in the corresponding claims.”

Now, Paper No. 20070914 argues in an un-numbered paragraph, that,

“the conflicting claims are not identical, they are not patentably distinct from each other because ... claim 59 **has everything as recited in the patented claim 21** including a controller. *The only difference is ... a control panel ...* . The limitation of a control panel is also found in the patented claim 39”

This assertion of Paper No. 20070914 is factually erroneous on the record before the Board. The “control panel” is not a single, off-the-shelf item, and there is no evidence of record which would suggest that the “control panel” defined by rejected claim 59 is, in the sense of *KSR International*, an off-the-shelf item known to have been previously used as defined by claim 59.

Moreover, what the Examiner has improperly ignored however, is that claim 59 defines a structure that is patentably distinguishable from patent claim 21. The underlying assertion of the Examining staff that “*The only difference is ... a control panel ...*” is erroneous. Contrary to the Examiner’s assertion, other differences do in fact exist because claim 21 defines a structure which incorporates, *inter alia*, flow sensorsand pressure sensorsand pressure valves. This structure is not defined by claim 59.

Claim 59 however, defines a “control panel” and the cooperative relation between the “control panel” and Appellant’s “first unit”, “second unit”, “third unit”, “common gas system”, “mode select switch” and the “first compressor” and the “second compressor.” This structure is nowhere defined by either patent claim 21 nor its parent claim 19. Moreover,

claim 21 does not encompass Appellant's "mode select switch." Furthermore, this cooperative relationship between these structural features of claim 59 is not found in patent claim 21. Consequently, the assertion of the Examining staff that "*The only difference is ... a control panel ...*", is incorrect and false.

Claim 39, which does define a "control panel" and its operational structure, does not depend upon patent claim 21. Moreover, claim 39 does not encompass Appellant's "mode select switch" defined by claim 59. Consequently, the assertion of the Examining staff that "The limitation of a control panel is also found in the patented claim 39 ..." is incorrect and false.

In order to make a *prima facie* demonstration of obviousness under 35 U.S.C. § 103(a), "all the elements of" the pending claims must be "accounted for in the prior art relied upon in this record."¹¹ Even ignoring *arguendo* the impropriety of the citation of Appellant's parent application against a claim in this divisional application, patent claim 21 does not encompass Appellant's "mode select switch" set forth in rejected claim 59. These differences may not be ignored in a determination of obviousness *vel non*. Moreover, claim 59 is not a claim that defines "a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field" as was found in *KSR Int'l Co., v. Teleflex Inc.*, 127 S.Ct. 1727, 82 USPQ2d 1385, 1391 (2007), but a claim that defines a single structure that may be used advantageously to test all the aircrew's life support equipment. As explained in Appellant's originally filed specification, embodiments defined by claim 59 do not require anything more than commonly available local power to operate,

¹¹ *In re John B. Sullivan, et al.*, ____ F.3d ____, ____ U.S.P.Q.2d ____ (Fed. Cir. 2007)(citation still unavailable).

and defines a structure that could be used in operation in a chemical environment. Embodiments of claim 59 do not require a separate high-pressure source of breathing air or oxygen, and have the ability to significantly reduce supporting man-hours, deployment costs and mobility footprint when testing related units of a mask, suit and the associated communication system for a single unit of an aircrew system.

Neither is claim 59 governed by *Perricone v. Medicis Pharmaceutical*, 77 USPQ2d 1321, 1324-25 (Fed. Cir. 2005) where the Court of Appeals upheld a finding of invalidity of certain claims based upon double patenting and a determination that both of the plaintiff's patents disclosed essentially the same subject matter, because in *Perricone*, no requirement for restriction was ever issued by the Office under 35 U.S.C. §121. Here, claim 59, although written in apparatus format, is directed to the subject matter of non-elected Group II, namely the operational aspects of a gas system and a method of testing. The prohibition of the third sentence of 35 U.S.C. §121 is directed to the citation of one "application", or "patent", against another "application", or "patent", and not as is suggested by the Examiner here, to the style (e.g., method or apparatus) of the claims in the application. The Board is respectfully urged to refuse to sustain this rejection.

The Court of Appeals carefully explained in its decision for *TiVo, Inc. v. Echostar Communications Corporation, et al.*, that "hardware claims" may be written in both a "process" style (e.g. claim 1 in *TiVo*) and in an "apparatus" style (e.g. claim 32 in *TiVo*). Similarly, claims directed to the particular process identified in Group II in Paper No. 4 issued on the 21st of May 2003 in Appellant's parent application, are not restricted to solely the "method" format, because the third sentence of 35 U.S.C. §121 speaks of "patents" and

“applications” rather than “claims” or of “methods”, “apparatus”, “machine”, “manufacture” or even “composition of matter.” Rather, the question is one of “invention” as is expressly stated in the second sentence of 35 U.S.C. §121, and as has been noted in *TiVo*, an invention may be defined in the format of either “apparatus” or “process.” Consequently, an obviousness type double patenting rejection may not be grounded upon the format or style of a claim.

Moreover, the claims presented in a divisional application that are directed to the non-elected subject matter of Group II defined in Paper No. 4 may be written either in an “apparatus” style or in a “process” style. Claim 59 is drawn to the subject matter of non-elected Group II, and defines the process of regulating the operational relationships between the structural features of claim 59, a “method of operating a gas system and method of testing” of non-elected Group II (*e.g.*, “compressing the air when the pressure ... is below ...” and “compressing the air when the pressure ... is equal to ...”) set forth in Paper No. 4. Consequently, the prohibition of 35 U.S.C. §121 prohibits the citation of the parent to which the requirement for restriction was applied, to support a double patenting rejection of claim 59.

The structure of rejected claim 59 is nowhere defined by either patent claim 21 nor its parent claim 19. Moreover, patent claim 21 does not encompass Appellant’s “mode select switch.” Furthermore, this cooperative relationship between these structural features of claim 59 is not found in patent claim 21. Consequently, two-way distinctiveness exists, and the patent claims fail to make a *prima facie* showing of obviousness. Consequently, the belated presented assertion by the Examiner in Paper No. 20070914 that:

“the conflicting claims are not identical, they are not patentably

distinct from each other because ... claim 59 **has everything as recited in the patented claim 21** including a controller. *The only difference is ... a control panel.* ... The limitation of a control panel is also found in the patented claim 39”

is, on the administrative record before the Board, factually erroneous because there is a complete dearth of evidence in the administrative record which shows either the constituent components defined by Appellant’s “control panel” or Appellant’s “mode selection switch.” Additionally, the Examiner’s assertion about “patented claim 39” is factually incorrect, as is demonstrated by a comparison of patent claim 39 with Appellant’s rejected claim 59.

In view of these errors on the administrative record, the Board is respectfully urged to refuse to maintain this rejection of claims 59 through 64.

Rejection of Claims 54-58 And 71-75 On Obviousness-Type Double Patenting

Claims 54 through 58 and 71 through 75 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 4, 7, 9, 17, 21, 26, and 27 of U.S. Patent No. 6,820,616 B1 modified according to Sherrod (US 5,979,444 A). In support of this rejection, Paper No. 20091022 stated that,

“Although the conflicting claims are not identical, they are not, they are not patentably distinct from each other because for example, instant claim 54 has everything as recited in the patented claim 1 except the recitation of a “regulator enable valve.” However, regulator enable valves are well known and commonly used in the art. For example, Sherrod discloses a

breathing apparatus with a regulator enable valve (22) coupled to a pressure regulator (90) to control the pressure of air flowing through the regulator. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a regulator enable valve as taught by Sherrod and is well known in the art to US'616's system so that the pressure of air flowing through the regulator can be accurately controlled to provide breathable air at a safe pressure to a user.

The limitations of claim 55 can be found in patented claim 4. The limitations of claim 56 can be found in patented claim 7. The limitations of claim 57 can be found in patented claim 9. The limitations of claim 58 can be found in patented claim 17. The limitations of claim 71 can be found in patented claims 26 and 27.

The limitations of claims 72, 73, and 75 can be found in patented claim 21. As discussed above, the addition of a regulator enable valve as taught by Sherrod would have been obvious to one of ordinary skill in the art at the time the invention was made as would have the addition of a control panel to US'616's controller so that the user can adjust the mode settings via the switches (and accordingly the valves). The limitations of claim 74 can be found in claims 26 and 27.”

On the evidence present in the administrative record, Appellant respectfully disagrees with

this with the foregoing conclusions-of-law and the rationale given in Paper No. 20090323 in support of those conclusions.

F. The Examining staff is granted no authority under 35 U.S.C. §121 to reject a claim filed in a divisional application under the doctrine of non-obviousness double patenting, when the rejection is premised upon the modification by a secondary reference by Appellant’s “patent issuing upon an application with respect to which a requirement for restriction under the section has been made,” and the claim is pending in a divisional “application filed as a result of the requirement ... before the issuance of the patent on the other application.”

The Federal Circuit has confirmed that a “later divisional applications filed in response to a restriction requirement *need not be limited to a single one of the examiner’s demarcated inventions to preserve the right to rely on the safe harbor of §121,*”¹² and held that 35 U.S.C. §121 allowed “patentees to respond to a restriction requirement by electing to prosecute a later divisional application ignoring the original restriction requirement and claiming more than one separate and distinct invention”¹³ without regard for the demarcation established by the initial requirement for restriction.

Consequently, the conclusion-of-law stated in Paper No. 20091022 stated that Claims 54 through 58 and 71 through 75 are rejected on the ground of nonstatutory obviousness-type

¹² *Boehringer Ingelheim International GmbH, et al. v. Barr Laboratories, Inc., et al.*, 592 F.3d @ 1354 (Fed. Cir. 25 January 2010).

¹³ Dissent of Gajarsa and Dyk, JJ, *Boehringer Ingelheim International GmbH, et al. v. Barr Laboratories, Inc., et al., supra.*

double patenting as being unpatentable over claims 1, 3, 4, 7, 9, 17, 21, 26, and 27 of U.S. Patent No. 6,820,616 B1 modified according to Sherrod (US 5,979,444 A) because,

“[a]lthough the conflicting claims are not identical, ... they are not patentably distinct from each other because for example, instant claim 54 has everything as recited in the patented claim 1 except the recitation of a “regulator enable valve,”

is untenable under 35 U.S.C. §121, as applied by the Federal Circuit to a third generation application of a parent application that was subjected to a requirement for restriction.

G. Paper No. 20070914 fails to make a *prima facie* demonstration of obviousness of claims 54 through 58, and 71 through 75 over claims 1, 3, 4, 7, 9, 17, 21, 26, and 27 of Appellant’s parent application U.S. Patent No. 6,820,616 B1 modified according to Sherrod US 5,979,444 A.

Claims 54-58 and 71

This rationale is incomplete and is factually insufficient to support the Examiner’s conclusion at law of obviousness, because none of claims 1, 3, 4, 7, 9, 17, 21, 26, and 27 of U.S. Patent No. 6,820,616 B1 modified according to Sherrod US 5,979,444 A defines such features of claims 54 through 58 as Appellant’s:

“a first compressor compressing air, said first compressor coupled to each of the first system and the second system ...,
a second compressor compressing the air, said second compressor coupled to the second system,”

in combination with Appellant's,

“a regulator enable valve coupled to the regulator, the regulator enable valve controlling pressure of air flowing through the regulator”

Modification of the primary reference to incorporate a “regulator” according to Sherrod '444 fails to remedy these deficiencies as is enabled by Appellant's structural cooperation between the regulator valve, the first system and the second system, and the first compressor “coupled to each of the first system and the second system” and the second compressor “coupled to the second system.” These differences, and the concomitant two-way distinctiveness may not be ignored. Consequently, there is no *prima facie* showing of obviousness-type double patenting.

Under the doctrine of obviousness-type double patenting, all differences between the claims must be identified before a conclusion at law of obviousness made be reached. This was not done in Paper No. 20090323. The conclusion of obviousness is not supported by the facts introduced into the administrative record, and this rejection may not be maintained. Such action is respectfully urged.

Claims 72-75

The rationale of Paper No 20090323 given as factual evidence in support of this rejection, states that:

“The limitations of claims 72, 73, and 75 can be found in patented claim 21. As discussed above, the addition of a regulator enable valve as taught by Sherrod would have been obvious to one of ordinary skill in the art at the time the

invention was made as would have the addition of a control panel to US'616's controller so that the user can adjust the mode settings via the switches (and accordingly the valves). The limitations of claim 74 can be found in claims 26 and 27."

Appellant respectfully disagrees because the Examiner's proposed combination of claims 21, 26 and 27 modified according to Sherrod '444 fails to define Appellant's:

"control panel coupled to each of the first unit, the second unit, and the gas system, the control panel including a mode select switch for controlling flow of air compressed by the first compressor or the second compressor, the mode select switch turning on or off the first flow valve depending on a mode selected by the mode select switch."

Specifically, "the Examiner's bald assertion"¹⁴ fails to consider the subject matter as a whole.

Moreover, these differences were neither identified nor considered in Paper No. 20090323. Consequently, no *prima facie* showing of obviousness-type double patenting has been made from the facts placed into evidence in this administrative record, and this rejection may not be maintained. Its withdrawal is respectfully requested. Such action is urged.

Appellant continues to observe that the claims are prohibited under 35 U.S.C. §121 from being rejected by obviousness type double patenting because the instant application is a divisional application of the parent case US 6,820,616. The fact that once again, the Office has lost or misplaced documents, and that the Office has no record of an application data sheet ("ADA") being submitted at the filing of the instant application. It is unclear where the ADA

¹⁴ *In re David H. Fine*, 837 F.2d 1071 (Fed. Cir. 1988)

copied on page 26 of the appeal brief is located in the application record. The requirements for claiming benefit (i.e., either within the ADA or in the first sentence of the specification) are laid out in the final rejection of 9/27/2007. Accordingly, this application was not properly claimed as a divisional application within the required time period and as such, the claim for priority was not granted (i.e., there is no record of an ADA and the specification was not amended with the required four or sixteen month time period).

The Examiner's assertion that "the Office will make a double patenting rejection because a patentee is entitled to only a single patent for an invention" has no basis at law where, as here, in imposing a requirement for restriction, the Office has declared that the application contains more than one independent and distinct invention.

Moreover, the form of a claim, whether method, apparatus, product-by-process or article of manufacture is simply a drafting technique that has no bearing upon the subject matter encompassed between two Groups identified in the requirement under 35 U.S.C. § 121. The assertion by Paper No. 20090323 only the method claimed in instant claim 76 is prohibited form being rejected by the parent patent by 35 USC § 121 because it is a separate and distinct invention from the patented apparatus" is nonsense, and has no authority in law.

Paper No. 20091022 responded to Appellant's earlier explanations by stating that,

"Applicant's arguments filed 10/2/2009 have been fully considered but they are not persuasive. Applicant presents no arguments that significantly differ in scope from those presented previously. Therefore, the response section from the previous rejection is substantially repeated here.

A. Authority to reject a claim filed in a divisional application

under the doctrine of non-obviousness double patenting. In response to appellant's argument that the claims are prohibited from being rejected by obviousness type double patenting because the instant application is a divisional application of the parent case US 6,820,616, examiner respectfully notes that the Office has no record of an application data sheet ("ADA") being submitted at the filing of the instant application. It is unclear where the ADA copied on page 26 of the appeal brief is located in the application record. The requirements for claiming benefit (i.e., either within the ADA or in the first sentence of the specification) are laid out in the final rejection of 9/27/2007. Accordingly, this application was not properly claimed as a divisional application within the required time period and as such, the claim for priority was not granted (i.e., there is no record of an ADA and the specification was not amended with the required four or sixteen month time period). Therefore, the patent is not prohibited from being used in a double patenting rejection.

No authority supports the Examiner's conclusion of law that after imposition of final restriction against Appellant's parent applications, those parent applications are "not prohibited [by 35 U.S.C. §121] from being used in a double patenting rejection." In U.S. practice, the Federal Circuit has held that 35 U.S.C. §121 allows "patentees to respond to a restriction requirement by electing to prosecute a later divisional application ignoring the

original restriction requirement and claiming more than one separate and distinct invention”¹⁵ without regard for the demarcation established by the initial requirement for restriction.¹⁶

Appellant has once again, concurrently with the written Response filed on the 26th of January 2010, filed an *Application Data Sheet*, with authorization to charge the incurred fee. Refund of that fee is respectfully requested, because an *Application Data Sheet* was timely filed with Appellant’s immediate parent application; that *Application Data Sheet* may not be ignored.

Paper No. 20091022 continues by asserting that,

“after review of the parent file wrapper, examiner sees no indication that the requirement was clearly withdrawn.”

The Examiner’s clarification of this issue is evidence that the requirement under 35 U.S.C. §121 has not, in fact, withdrawn. Consequently, the “guidance given to examiners as set forth in the MPEP §804.01 (E), (F), and (G)” is in applicable here, and 35 USC §121 prohibits the **citation** of Appellant’s parent applications from being used in an obviousness type double patenting rejection.

Paper No. 20091022 also argued that,

“Additionally, if the restriction was not withdrawn, as noted in the MPEP §804.01, when an identical invention is claimed in both the patent and a pending application (as is the

¹⁵ Dissent of Gajarsa and Dyk, JJ, *Boehringer Ingelheim International GmbH, et al. v. Barr Laboratories, Inc., et al., supra*.

¹⁶ *Boehringer Ingelheim v. Barr Laboratories, Inc.*, 592 F.3d 1340 (Fed. Cir. 2010).

case here with the apparatus claims), “the Office will make a double patenting rejection because a patentee is entitled to only a single patent for an invention.” Here, the same device is being claimed in the patent and the instant application. The restriction requirement in the parent case was between an apparatus and a method of using that apparatus. The apparatus claims were elected, examined, and issued as a patent. Accordingly, only the method claimed in instant claim 76 is prohibited from being rejected by the parent patent by 35 USC §121 because it is a separate and distinct invention from the patented apparatus.”

Appellant respectfully submits that the factual situation found in MPEP §804.01, namely “when an identical invention is claimed in both the patent and a pending application,” is not the factual situation averred by Paper No. 20091022 to be present here. Consequently, MPEP §804.01 is inapplicable and should be ignored.

Paper No. 20091022 also stated that,

“B. 35 USC §121 does not mandate an absolute prohibition. As noted above, the Office has no record of an ADA and accordingly, the claim for priority was not timely submitted. However, even if the instant case is considered a division of the patented case, the patent is still not barred from being used in an obviousness type double patenting rejection because the restriction requirement in the patent was between an apparatus and a method of using that apparatus. The apparatus was elected,

examined, and issued as a patent. Accordingly, the Office will not grant two patents for the same invention and only the claimed method of operating the system is barred from an obviousness type double patenting rejection by the parent case.”

The foregoing assertion contradicts the admonition of the Commissioner written about 35 U.S.C. §121 (in all capital letters) in *MPEP* §803.01,

“IT STILL REMAINS IMPORTANT FROM THE STANDPOINT OF THE PUBLIC INTEREST THAT NO REQUIREMENTS BE MADE WHICH MIGHT RESULT IN THE ISSUANCE OF TWO PATENTS FOR THE SAME INVENTION.”

In other words, assuming that the unlikely should occur, namely the birth of an Appellant who sought “two patents for the same invention,” the Commissioner’s admonition makes clear that there is nothing in 35 U.S.C. §121 that authorizes any member of the Examining Corps in the U.S. PTO to forbid the issuance of “two patents for the same invention.”

The Examiner is respectfully invited to ponder therefore, that in light of the Commissioner’s explicit caution, delivered in all capital letters in *MPEP* §803.01, that Paper No. 20091022 is mere Examiner’s argument devoid of authority of either 37 CFR or judicial decision. Consequently, the foregoing assertion is an improper conclusion of law unsupported by any factual evidence found in this administrative record. As such, this assertion has no merit and can not be relied upon to support this rejection.

Paper No. 20091022 continued by asserting that,

“C. Style of claims. As discussed above, the patent is not

barred from being used in an obviousness type double patenting rejection because the restriction requirement in the patent was between an apparatus and a method of using that apparatus. The apparatus was elected, examined, and issued as a patent. Accordingly, the Office will not grant two patents for the same invention and only the claimed method of operating the system is barred from an obviousness type double patenting rejection by the parent case.”

This assertion by Paper No. 20091022 is also mere Examiner’s argument devoid of authority of either 37 CFR or judicial decision. No factual evidence found in the administrative record supports the Examiner’s factual conclusion that,

“the restriction requirement in the patent was between an apparatus and a method of using that apparatus,”

or that,

“the patent is not barred from being used in an obviousness type double patenting rejection.”

The administrative record explicitly demonstrates that the requirement imposed in Paper No. 6 dated on the 12th of September 2003 was between Group I, “a gas system and a testing apparatus, classified in class 128 [sic] subclass 204.18” and Group II, “a method of operating a gas system and a method of testing, classified in class 73, subclass 40;” the finding-of-fact stated in Paper No. 6 was that Groups I and II were “distinct” and covered materially different subject matter.

Consequently, the assertion by Paper No. 20091022 that this application and its parent

are for “the **same invention**” is late and untimely, and is contradicted by the administrative record. The Board is therefore respectfully urged to refuse to maintain this rejection.

More significantly, the imposition and designation of the requirement as “final” enforces an unappealable denial of the right of Appellant to seek patent coverage of any subject matter which is not encompassed by the narrow definition of Group I, namely subject matter that can not be proved by Appellant to be within the Group defined as “a gas system and a testing apparatus, classified in class 128 [*sic*] subclass 204.18.”

Unclear is the Examiner’s point, except perhaps the doctrine of “consonance” which has been explained as “requiring that the later application or applications follow the original examiner’s restriction requirement”¹⁷ The Board’s attention is respectfully invited to note that the doctrine of consonance has only had a very limited scope of application in practice under 35 U.S.C. §121, as is indicated by the Federal Circuit’s recent observation that a patentee is permitted “to ignore the examiner’s demarcation of independent and distinct inventions in subsequent divisional applications.”¹⁸

In *Boehringer*,¹⁹ the patentee filed U.S. Patent Application No. 061810,947 (the “First Application”) on December 19, 1985. The First Application contained fifteen claims directed to a variety of compounds, methods of using those compounds, and methods for preparing

¹⁷ Dissent of Gajarsa and Dyk, JJ, from a denial of a *Petition For Rehearing En Banc, Boehringer Ingelheim International GmbH, et al. v. Barr Laboratories, Inc., et al.*, ____ F.3d ____ (Fed. Cir. 7 May 2010).

¹⁸ Dissent of Gajarsa and Dyk, JJ, *Boehringer Ingelheim International GmbH, et al. v. Barr Laboratories, Inc., et al.*, *supra*.

¹⁹ *Boehringer Ingelheim v. Barr Laboratories, Inc.*, 592 F.3d 1340 (Fed. Cir. 2010).

those compounds. An examiner issued a restriction requirement dividing the fifteen claims into ten groups (five compound groups, two process groups, and three method of use groups) and instructed the patentee to elect either (1) one of the compound groups and one of the method of use groups or (2) one of the process groups. The patentee elected to claim one of the compound groups and one of the method of use groups in the First Application.

Subsequently, the patentee filed U.S. Patent Application No. 07/124,197 (the “Second Application”) as a divisional of the First Application. The Second Application initially contained all the remaining claims from the First Application, but ultimately only claimed the remaining method of use groups (excluding the method of use combined with the particular compound claimed in the First Application). The Second Application issued as U.S. Patent No. 4,843,086 (the “‘086 patent”). While the Second Application was pending, the patentee filed U.S. Patent Application No. 07/125,671 (the “Third Application”), as a divisional of the Second Application. The Third Application claimed the remaining four compound groups and issued as U.S. Patent No. 4,886,812 (the “‘812 patent”).

The Federal Circuit held that a “later divisional applications filed in response to a restriction requirement *need not be limited to a single one of the examiner’s demarcated inventions to preserve the right to rely on the safe harbor of §121,*”²⁰ and held that 35 U.S.C. §121 allowed “patentees to respond to a restriction requirement by electing to prosecute a later divisional application ignoring the original restriction requirement and

²⁰ *Boehringer Ingelheim International GmbH, et al. v. Barr Laboratories, Inc., et al.*, 592 F.3d @ 1354 (Fed. Cir. 25 January 2010).

claiming more than one separate and distinct invention”²¹ without regard for the demarcation established by the initial requirement for restriction. In essence, the final rejection erroneously ignores these broad rights secured by 35 U.S.C. §121.

H. A rejection based upon assertions of statutorily different categories of invention is a myth, and is ungrounded upon statutory basis.

Paper No. 20091022 additionally asserts that,

“Appellant argues that the structure of the claims defines a “method of operating” and is merely a drafting technique. However, this is not convincing because the structural limitations of the instant claims are in the patented claims and any infringement over the patented system would clearly infringe on the instant application. The only claim defining a method of operating the gas system is instant claim 76, which has been indicated as allowable over the prior art of record. The method of using a device falls into a different statutorily allowed category of invention.”

As was explained by the Federal Circuit in *TIVO*, assertions of statutorily different categories of invention is a myth, and provides no statutory basis for a rejection of these claims. Consequently, this assertion is an improper conclusion of law unsupported by any factual evidence found in this administrative record. As such, this assertion has no merit and can not

²¹ Dissent of Gajarsa and Dyk, JJ, *Boehringer Ingelheim International GmbH, et al. v. Barr Laboratories, Inc., et al., supra*.

be relied upon to support this rejection.

Paper No. 20091022 further asserted that,

“D. Prima Facie case of obviousness. Appellant argues that a control panel having a “mode selection switch” is not an obvious modification to the patented claims to one of ordinary skill in the art. However, this is not found convincing. “Panels” are well known and commonly used to hide/insulate electrical components from a user and the term “mode select switch” provides no definite structural limitation other than being a switch capable of controlling flow of air through the compressors. The patent claims a controller with switches for operation of the various tests of the system. Accordingly, examiner maintains that whether or not the patent specifically claims the switch as a “mode select switch” is not a patentable distinction because the patented switch controls the same various tests and structure as the instant claims and therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have designed the switches to control the flow of air through the compressors because this how the tests are performed in the patented claims as well as the instant claims. Additionally, it is obvious that a system with multiple testing units and a controller will need a means of switching between the various tests and controlling the individual

components of the system. Similar arguments hold for providing the system with a “regulator enable valve.” Such a modification would involve a mere use of a well known method into a well known device to yield predictable results that do not patentably distinguish an invention over the prior art.

Examiner again reiterates that these are obvious-type double patenting rejections because admittedly the claims are not identical, but any differences between the patented claims and the instant claims are clearly obvious variations.”

This assertion is based upon a finding that at the point-of-novelty, the “differences” between Appellant’s pending claims and the claims issued in Appellant’s parent application, a secondary reference teaches these “differences.” This assertion is improper under the doctrine of obviousness because Paper No. 20091022 fails to identify such a secondary reference, and because the Examiner is improperly focusing upon a “point-of-novelty” test and is improperly using Appellant’s own specification, rather than Appellant’s claims or a secondary reference, to teach the cooperative relationships between Appellant’s “regulator enable valve,” “controller,” and “switching” aspects

A refusal to maintain this rejection is therefore respectfully urged.

CONCLUSION

Under the doctrine of non-statutory, obviousness-type double patenting. The third sentence of 35 U.S.C. §121 applies that prohibition against the patent, or application itself, and that prohibition is not limited by either the style, format or even the content of the claims in the divisional application. Moreover, what the Examiner appears to have ignored here is that a requirement for restriction is imposed on the basis of **subject matter**, not upon either the text of the claims themselves, or upon whether the pending claims are drafted as an **“apparatus”** or a **“method”** format because the claims define neither a Group in a requirement for restriction or a Genius or Species in a requirement for an election of species.

This point is emphatically illustrated by the Federal Circuit in *TiVo, Inc. v. Echostar Communications Corporation, et al.*, which ruled that **“hardware claims”** may be written in both a **“process”** style (e.g. claim 1 in *TiVo*) and in an **“apparatus”** style (e.g. claim 32 in *TiVo*). Consequently, the claims presented in a divisional application that are directed to the **non-elected subject matter** of Group II defined in Paper No. 4 may be written either in an **“apparatus”** style or in a **“process”** style.

Consideration must be given to the fact that no demarcation between the elected and non-elected groups given in a requirement for restriction under 37 CFR §1.142 contemplates examination of subject matter not encompassed by the elected group.²² In an analogous

²² In other words, nothing in the imposition of a requirement imposed under 35 U.S.C. §121 makes provision for the rapid, or early examination of any of the subject matter not held by the Office to encompass the ***elected subject matter***. Whether a combination of one constituent component of a claim encompassing the elected subject matter and a feature taken from a claim that does not encompass the elected subject matter will define useful, novel and unobvious subject matter is immaterial to the examination after the requirement for restriction is made final. The important point here is that nothing the

context, this point is further emphasized by the admonition give by the Federal Circuit that “[a]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments.”²³ In short, 35 U.S.C. §121 protects the ability of an applicant to seek patent protection for aspects and features disclosed in a parent application which are not encompassed by a requirement for restriction that limits the examination of the parent application to only the subject matter encompassed by those claims and that class and subclass used to define the demarcation of only the elected Group I.

The recent recognition by the Federal Circuit held that a “later divisional applications filed in response to a restriction requirement *need not be limited to a single one of the examiner’s demarcated inventions to preserve the right to rely on the safe harbor of §121,*”²⁴ and that 35 U.S.C. §121 secures to Appellant those broad rights that allows “patentees to respond to a restriction requirement by electing to prosecute a later divisional application ignoring the original restriction requirement and claiming more than one separate and distinct

requirement imposed either identifies or defines this combination of features drawing from the “elected subject matter” and the “non-elected subject matter.” 35 U.S.C. §121, as explained by the Federal Circuit in *Boehringer Ingelheim International GmbH, et al. v. Barr Laboratories, Inc., et al.*, 592 F.3d @ 1354 (Fed. Cir. 25 January 2010), the right of the applicant to obtain examination of this combination of features drawing from the “elected subject matter” and the “non-elected subject matter” in a subsequent timely-filed application is protected from a “double patenting” rejection by the explicit text of 35 U.S.C. §121.

²³ *Epistar Corporation v. International Trade Commission, et al.*, 566 F.3d 1321, 91 USPQ 2d 1180 (2009).

²⁴ *Boehringer Ingelheim International GmbH, et al. v. Barr Laboratories, Inc., et al.*, 592 F.3d @ 1354 (Fed. Cir. 25 January 2010).

invention”²⁵ without regard for the demarcation established by the initial requirement for restriction has been erroneously ignored by these final rejections.

The pending claims such as claim 54 and its dependent claims 55 through 58 and 71, independent claim 59 and its dependent claims 60 through 64, and independent claim 72 and its dependent claims 73 through 75, that define the cooperative relation between the controller (in claim 54) or the “control panel” (in claims 59 and 72) and Appellant’s “first unit”, “second unit”, “third unit”, “common gas system”, “mode select switch” and the “first compressor” and the “second compressor.” The particular operational relationships between the structural features of claim 59 define the “method of operating a gas system and method of testing” of non-elected Group II (*e.g.*, “compressing the air when the pressure ... is below ...” and “compressing the air when the pressure ... is equal to ...”) of Paper No. 4. Consequently, the prohibition of 35 U.S.C. §121 prohibits the citation of the parent to which the requirement for restriction was applied, to support a double patenting rejection of claims 59 in the instant divisional application. The Board is accordingly urged to refuse to sustain this rejection.

In summary, the admonition of the Commissioner written about 35 U.S.C. §121 (in all capital letters) in *MPEP* §803.01,

“IT STILL REMAINS IMPORTANT FROM THE
STANDPOINT OF THE PUBLIC INTEREST THAT NO
REQUIREMENTS BE MADE WHICH MIGHT RESULT IN
THE ISSUANCE OF TWO PATENTS FOR THE SAME
INVENTION.”

²⁵ Dissent of Gajarsa and Dyk, JJ, *Boehringer Ingelheim International GmbH, et al. v. Barr Laboratories, Inc., et al., supra.*

In other words, assuming an Appellant who sought after imposition of a requirement for restriction, seeks “two patents for the same invention,” the Commissioner’s admonition makes clear that there is nothing in 35 U.S.C. §121 that authorizes any member of the Examining Corps in the U.S. PTO to forbid the issuance of those “two patents for the same invention.”

Appellant’s undersigned attorney respectfully submits however, that the methodology of inventors and Appellants do not work this way, but rather always seek patent protection upon improvements upon their improvements.

The Board is respectfully invited to ponder therefore, that in light of the Commissioner’s explicit caution, delivered in all capital letters in *MPEP* §803.01, and the holding of the U.S. Court of Appeals for the Federal Circuit that a “later divisional applications filed in response to a restriction requirement ***need not be limited to a single one of the examiner’s demarcated inventions to preserve the right to rely on the safe harbor of §121,***”²⁶, that Paper No. 20091022 is mere Examiner’s argument devoid of authority of either 37 CFR or judicial decision.

²⁶ *Boehringer Ingelheim International GmbH, et al. v. Barr Laboratories, Inc., et al.*, 592 F.3d @ 1354 (Fed. Cir. 25 January 2010).

In view of the law and facts stated herein as well as all the foregoing reasons, Appellant believes that the rejection is improper and respectfully requests that the Board refuse to sustain the outstanding rejection of the claims.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

Claims on Appeal (54-64 and 71-75)

1 54. (Previously Presented) A gas system for testing aircrew systems including a first
2 system and a second system, said gas system characterized by:

3 a first compressor compressing air, said first compressor coupled to each of the first
4 system and the second system, said first compressor characterized by at least one blower, a
5 speed of said blower depending on a voltage applied to said blower;

6 a second compressor compressing the air, said second compressor coupled to the
7 second system, said second compressor producing a lower flow at a higher pressure than said
8 first compressor;

9 a first flow sensor detecting a flow of the air compressed by said first compressor and
10 leakage of the aircrew systems;

11 a second flow sensor detecting the flow of the air compressed by said first compressor
12 and the leakage of the aircrew systems;

13 a first flow valve mounted to control the flow of the air compressed by said first
14 compressor to said first flow sensor;

15 a second flow valve mounted for controlling the flow of the air compressed by said
16 first compressor to said second flow sensor;

17 a regulator regulating a pressure of said second system;

18 a regulator enable valve coupled to the regulator, the regulator enable valve controlling
19 pressure of air flowing through the regulator;

20 a first pressure sensor detecting a pressure of said first system;

21 a second pressure sensor detecting the pressure of said second system;
22 a first pressure valve controlling the pressure of said first system;
23 a second pressure valve for controlling the pressure of said second system; and
24 a controller regulating operation of said gas system.

1 55. (Previously presented) The gas system of claim 54, said first compressor
2 characterized by three regenerative blowers connected in series, said three regenerative
3 blowers characterized by a first blower, a second blower, and a third blower.

1 56. (Previously Presented) The gas system of claim 54, wherein said second system
2 includes a G-suit, said first compressor compressing the air until pressure of the G-suit
3 reaches a predetermined first pressure, said second compressor starting to compress the air
4 when said pressure of the G-suit reaches said predetermined first pressure and finishing when
5 said pressure of the G-suit reaches a predetermined second pressure.

1 57. (Previously presented) The gas system of claim 54, further comprised of:
2 said first flow sensor being able to measure the flow from 0 to 10,000 cubic
3 centimeters per minute; and
4 said second flow sensor being able to measure the flow 0 to 300 cubic centimeters per
5 minute.

1 58. (Previously Presented) The gas system of claim 54, with said controller
2 characterized by a speed control printed circuit board controlling a voltage applied to said

first compressor to control the speed of said blower.

59. (Previously Presented) An apparatus for testing aircrew systems, said apparatus characterized by:

a first unit configured to test a mask;

a second unit configured to test a G-suit;

a third unit configured to test a communication systems;

a common gas system integrated into said first unit and said second unit, said common gas system characterized by a first compressor and a second compressor producing a lower flow and a higher pressure than said first compressor, said first compressor compressing air when a pressure of an item to be tested is below a preset pressure value, and said second compressor compressing the air when the pressure of the item to be tested is equal to or over the preset pressure value; and

a control panel coupled to each of the first unit, the second unit, the third unit, and the common gas system, the control panel including a mode select switch for controlling flow of air compressed by the first compressor or the second compressor.

60. (Previously presented) The apparatus of claim 59, further characterized by a fourth unit configured to test a goggle.

61. (Previously Presented) The apparatus of claim 59, comprised of

said common gas system characterized by:

at least one blower included in said first compressor, a speed of said blower depending

on a voltage applied to said blower;

a first flow sensor detecting a flow of compressed air and a leaking of the aircrew systems;

a second flow sensor detecting the flow of the compressed air and the leaking of the aircrew systems;

a first flow valve controlling the flow of the compressed air to said first flow sensor, the first flow valve turning on or off depending on a mode selected by the mode select switch;

a second flow valve controlling the flow of the compressed air to said second flow sensor, the second flow valve turning on or off depending on the mode selected by the mode select switch;

a regulator regulating a pressure of the G-suit;

a first pressure sensor detecting a pressure of the mask;

a second pressure sensor detecting the pressure of the G-suit;

a first pressure valve controlling the pressure of the mask;

a second pressure valve controlling the pressure of the G-suit; and

a controller regulating operation of said gas system.

62. (Previously presented) The apparatus of claim 59, said first compressor characterized by three regenerative blowers connected in series, said three regenerative blowers characterized by a first blower, a second blower, and a third blower.

63. (Previously presented) The apparatus of claim 59, said first compressor compressing the air for testing the mask, said first compressor compressing the air for the

3 G-suit until pressure in the G-suit reaches 55 inch H₂O, said second compressor starting to
4 compress the air for the G-suit when said pressure is about 55 inch H₂O and finishing when
5 said pressure in the G-suit is about 70 inch H₂O.

1 64. (Previously presented) The apparatus of claim 59, further characterized by:
2 a first limit valve limiting a pressure of said first system.

1 71. (Previously Presented) The gas system of claim 54, further comprising:
2 a first digital indicator reading out data outputted from said first and second flow
3 sensors;
4 a second digital indicator reading out data outputted from said first pressure sensor;
5 and
6 a third digital indicator reading out data outputted from said second pressure sensor.

1 72. (Previously Presented) An apparatus for testing aircrew systems, said apparatus
2 comprising:
3 a first unit for testing a mask;
4 a second unit for testing a G-suit;
5 a gas system coupled to the first unit and the second unit, the gas system comprising:
6 a first compressor for compressing air, the first compressor coupled to the first
7 unit;
8 a second compressor for compressing air, the second compressor coupled to the
9 second unit;

10 a first flow sensor detecting flow of air compressed by the first compressor;
11 a first flow valve coupled to the first flow sensor, the first flow valve
12 controlling flow of air compressed by the first compressor into the first flow sensor;
13 a first pressure sensor detecting pressure of the first unit;
14 a second pressure sensor detecting pressure of the second unit;
15 a regulator regulating pressure of air flowing into the second unit; and
16 a regulator enable valve coupled to the regulator, the regulator enable valve
17 controlling pressure of air flowing through the regulator; and
18 a control panel coupled to each of the first unit, the second unit, and the gas system,
19 the control panel including a mode select switch for controlling flow of air compressed by the
20 first compressor or the second compressor, the mode select switch turning on or off the first
21 flow valve depending on a mode selected by the mode select switch.

1 73. (Previously Presented) The apparatus of claim 72, further comprising:
2 a second flow sensor detecting flow of air compressed by the first compressor; and
3 a second flow valve coupled to the first flow sensor, the second flow valve controlling
4 flow of air compressed by the first compressor into the second flow sensor.

1 74. (Previously Presented) The apparatus of claim 73, further comprising:
2 a first digital indicator reading out data outputted from the first and second flow
3 sensors;
4 a second digital indicator reading out data outputted from the first pressure sensor; and
5 a third digital indicator reading out data outputted from said second pressure sensor.

1 75. (Previously Presented) The apparatus of claim 73, wherein the mode select switch
2 turns on or off the second flow valve depending on a mode selected by the mode select switch.

IX. EVIDENCE APPENDIX

All of the evidence before the Board has previously been timely entered into the administrative record of the prosecution history of this application and the prosecution histories of Appellant's Serial No. 10/208,188 filed on the 31st of July 2002 and subsequently issued as U.S. Patent No. 6,820,626 on the 23rd of November 2004, provisional application No. 60/308,846 filed on the 8th of January 2001.

X. RELATED PROCEEDINGS APPENDIX

None.